

What is claimed is:

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1. An image-recording apparatus comprising:
  - a casing section which encases a light and heat sensitive recording material;
  - an optical recording section, downstream of the casing section, which exposes the light and heat sensitive recording material, which has been fed from the casing section, for recording a latent image;
  - a thermal developing section, downstream of the optical recording section, which develops the latent image by heating;
  - and
  - an optical fixing section, downstream of the thermal developing section, which irradiates light for fixing a developed image.
2. The image-recording apparatus as claimed in claim 1, wherein the optical recording section records the latent image with recording light having an intensity maximum at at least one wavelength selected from a wavelength range of 300 to 1100 nm.
3. The image-recording apparatus as claimed in claim 2, wherein a maximum irradiation energy of the recording light on the surface of the light and heat sensitive recording material is from 0.01 to 50 mJ/cm<sup>2</sup>.
4. The image-recording apparatus as claimed in claim 1, wherein the thermal developing section develops with a

heating temperature of 50 to 200°C.

5. The image-recording apparatus as claimed in claim 1, wherein the optical fixing section fixes with light having intensity so as to provide an illumination of 10,000 to 50,000,000 lux.

6. The image-recording apparatus as claimed in claim 1, wherein the thermal developing section heats such that a range of variation with respect to a heating temperature setting is at most  $\pm 5^{\circ}\text{C}$ .

7. The image-recording apparatus as claimed in claim 1, wherein the light and heat sensitive recording material is provided with a light and heat sensitive recording layer containing:

a color-forming component A encapsulated in heat-responsive microcapsules; and

a photo-polymerizable composition outside the heat-responsive microcapsules, the photo-polymerizable composition including at least a substantially colorless compound B, which has in one molecule a polymerizable group and a site capable of reacting with the color-forming component A to form color, and a photo-polymerization initiator.

8. The image-recording apparatus as claimed in claim 1, wherein the light and heat sensitive recording material is provided with a light and heat sensitive recording layer containing:

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a color-forming component A encapsulated in heat-responsive microcapsules; and

a photo-polymerizable composition outside the heat-responsive microcapsules, the photo-polymerizable composition including at least a substantially colorless compound C capable of reacting with the color-forming component A to form color, a photo-polymerizable compound D, and a photo-polymerization initiator.

Sub 9. The image-recording apparatus as claimed in claim 1, wherein the light and heat sensitive recording material is provided with a light and heat sensitive recording layer containing:

a substantially colorless compound C that is encapsulated in heat-responsive microcapsules and is capable of reacting with a color-forming component A to form color; and

a photo-polymerizable composition outside the heat-responsive microcapsules, the photo-polymerizable composition including at least a color-forming component A, a photo-polymerizable compound D, and a photo-polymerization initiator.

10. The image-recording apparatus as claimed in claim 1, wherein the light and heat sensitive recording material is provided with a photo-curable light and heat sensitive recording layer which contains:

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an oxidant precursor E encapsulated in heat-responsive microcapsules;

an activator G outside the heat-responsive microcapsules, the activator G being capable of reacting with the oxidant precursor E to form an oxidant F; and

a dye-forming coupler H capable of coupling with the oxidant F to form a dye,

and wherein light irradiation cures an irradiated portion of the light and heat sensitive recording layer.

11. The image-recording apparatus as claimed in claim 1, wherein the light and heat sensitive recording material is provided with a photo-curable light and heat sensitive recording layer which contains:

an oxidant precursor E outside heat-responsive microcapsules;

an activator G encapsulated in the heat-responsive microcapsules, the activator G being capable of reacting with the oxidant precursor E to form an oxidant F; and

a dye-forming coupler H capable of coupling with the oxidant F to form a dye,

and wherein light irradiation cures an irradiated portion of the light and heat sensitive recording layer.

Sub 93 12. An image-recording apparatus comprising:  
a casing section which encases light and heat sensitive recording material;

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an optical recording section, downstream of the casing section, which exposes, using at least a short wavelength light source that has an intensity maximum in a wavelength range of 300 to 450 nm, the light and heat sensitive recording material, which has been fed from the casing section, for recording a latent image;

a thermal developing section, downstream of the optical recording section, which develops the latent image by heating; and

an optical fixing section, downstream of the thermal developing section, which irradiated light for fixing a developed image.

13. The image-recording apparatus as claimed in claim 12, wherein the short wavelength light source is a semiconductor laser.

14. The image-recording apparatus as claimed in claim 13, wherein the semiconductor laser is a Group III element nitride semiconductor laser.

15. The image-recording apparatus as claimed in claim 12, wherein the optical recording section exposes, for recording the latent image, using the short wavelength light source and another light source, whose intensity maximum wavelength is different from the intensity maximum of the short wavelength light source.

16. The image-recording apparatus as claimed in claim

15, wherein the other light source is selected from the group consisting of semiconductor lasers, solid state lasers, fiber lasers, wavelength conversion solid state lasers, and gas lasers.

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